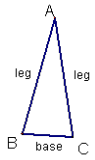
Ch 4 Test Tuesday 12/4

4.7 Use Isosceles and Equilateral Triangles

ΔABC is isosceles

$\overline{AB} \cong \overline{AC}$



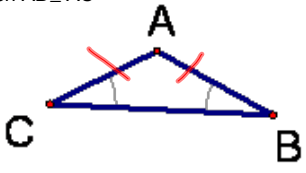
$\angle A$ is the vertex angle
$\angle B$ and $\angle C$ are the base angles

Base Angles Theorem-(Theorem 4.7) If 2 sides of a Δ are $\cong$, then the angles opposite those sides are $\cong$.

Since $\overline{AB} \cong \overline{AC}$, then $\angle C \cong \angle B$

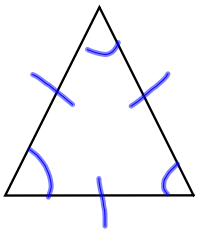
The Converse of the Base Angles Theorem-(Theorem 4.8) If 2 angles of a Δ are $\cong$, then the sides opposite those angles are $\cong$.

Since $\angle C \cong \angle B$, then $\overline{AB} \cong \overline{AC}$



Corollary -If a Δ is equilateral, then it is equiangular

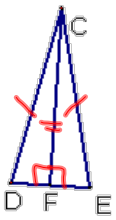
Corollary -If a Δ is equilangular, then it is equialateral



*******The altitude of an isosceles△ is ⊥ to the base at its midpoint.**

If $\overline{CF}$ is the altitude from the vertex angle, then DF = FE and m∠CFE = 90°

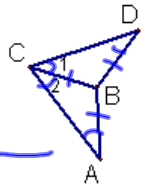
Why? △DFC ≅ △EFC by HL



Proof Examples:

Ex 1

Given: AB = CB = BD
∠2 ≅ ∠1
Prove: ∠A ≅ ∠D



Statements	Reasons
①	① Given
② ∠2 ≅ ∠A ∠1 ≅ ∠D	② Base Angles Thm (B.A.T)
③ ∠A ≅ ∠D	③ Subst.

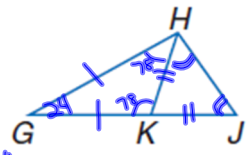
m∠1 = m∠3 + m∠4

In the figure, $\overline{GK} \cong \overline{GH}$ and $\overline{HK} \cong \overline{KJ}$.

$m\angle G = 24$

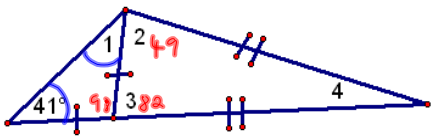
$m\angle J =$ 39

78 ÷ 2



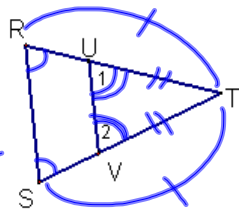
180
−24
156 ÷ 2 = 78

Find the measures of the numbered angles.



m∠1 = 41°
m∠2 = 82°
m∠3 = 82°
m∠4 = 16°

Given: $\angle R \cong \angle S$
$\angle 2 \cong \angle 1$
Prove: $\overline{RU} \cong \overline{SV}$

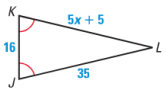


S.	R.
① ≅	① Given
② $\overline{RT} \cong \overline{ST}$, $\overline{UT} \cong \overline{VT}$	② Conv. Base Angles Thm.
③ $RT = ST$, $UT = VT$	③ def of ≅
④ $RT = RU + UT$, $ST = SV + VT$	④ SAP
⑤ $RU + UT = SV + VT$	⑤ Subst.
⑥ $RU = SV$	⑥ Subtr.
⑦ $\overline{RU} \cong \overline{SV}$	⑦ def of ≅

HW
p267-268 #s 11-13, 15-17, 20-22, 32, 33

ALGEBRA Find the value of x.

11.


12.


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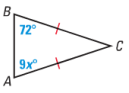
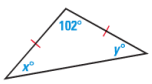
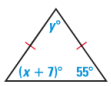
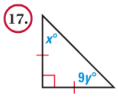


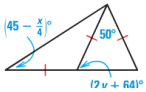
ALGEBRA Find the values of x and y.

15.


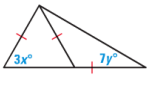
16.


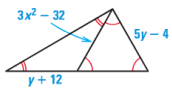
17.


ALGEBRA Find the values of x and y, if possible. *Explain* your reasoning.

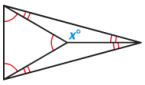
20.


2y +64

21.


22.


ALGEBRA Find the value(s) of the variable(s). *Explain* your reasoning.

32.


33.